HAWAI‘I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT (QLR) for *Pisces* and *RCV-150*

DIVE: P-5 735

(*Extend length of sections as needed/appropriate*)

MISSION STATUS

Location: Au‘au Channel between Maui and Lana‘i

Latitude: 20 ° 46.6N **Longitude:** 158 ° 40.7W

Mission Date: 4 April 2009 **Duration:** 8 hours 14 mins

Maximum Depth: 127 meters

Project Title: CRES (2007) Investigating the Deep (50-100 m) Coral Reefs in Hawaii

Principal Investigator: Richard Pyle

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Observer 1: Tonatiuh Trejo **Observer 2:** Brian N. Popp

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Pilot 1: Terry Kirby **Pilot 2:**

Scientific Data Acquired: Prepare an abstract outlining your objectives, techniques, findings, etc.

Objectives:

Our primary objective was to collect reef fish from water depths between 90 and 110 m. These specimens will be used for broad ecological characterization including biodiversity and the population structure and dynamics of the vertebrate fauna in this depth range. We established rotenone stations that allowed collection of a wide variety of vertebrates. Secondary objectives included collection of a variety of coral, algal and invertebrate specimens from the same depth interval.

Hawaii's coral reef fishes are subjected to various recreational and commercial fisheries, and are sometimes over-exploited in the vicinity of larger human population centers. The positive correlation between high concentrations of people and over-exploitation of coral reef fisheries holds true for many other island groups throughout the tropical Pacific. Historically, however, the remoteness (both in terms of distance from shore, and depth) of deep reef habitats may have effectively precluded some harvest techniques, such as spearfishing and netting. As a result, the importance of deeper coral reefs as a refuge and source of reef organisms is likely to be particularly significant in urbanized areas, enhancing the need to understand and protect them.

Observations, findings, etc:

A total of 54 specimens of fish were collected from 3 separate stations. One station was in a *Leptoseries* sp. coral bed. The two other stations were on rock walls - one under an overhang and the other in a small cave. Two samples of the alga *Halimeda* sp. were collected from the region surrounding the last rotenone station surrounding a small cave (20°46.889'N, 156°40.893'W).

In addition to the 3 rotenone stations, general observations of the bottom were conducted. The dive began in a sandy to fine silt-filled basin (20°46.623'N, 156°40.689'W). A short transit to the west revealed a rocky mound with numerous 0.5-1.0 m high colonies of black coral (~20°46.639'N, 156°40.784'W). Survey along a north-south trending ridge from approximately 20°46.681'N, 156°40.779'W to 20°46.779'N, 156°40.724'W revealed dense cover of the coral *Leptoseries* sp. A transect to the northwest over a broad ridge revealed that the dense *Leptoseries* sp. beds quickly transitioned into a gravely carbonate surface devoid of coral and algae. Near the last fish collection station (20°46.889'N, 156°40.893'W) the steep slope above and around the site contained sparse *Leptoseries* sp. cover at a water depth of approximately 95-105m.

Observed Species list:

In addition to the detailed list of samples collected, numerous other fish species were observed but not collected, including: bigeyes (*Priacanthus* sp.), jacks (*Seriola* sp.), ulua (*Caranx ignobilis*), uku (*Aprion virescens*), longnose butterflyfish (*Forcipiger longirostris*), sunrise wrasse (*Bodianus sanguineus*), razorfish (*Iniistius* sp.), unicornfish (*Naso* spp.), toby (*Canthigaster* sp.), moorish idol (*Zanclus cornutus*), and gilded triggerfish (*Xanthichthys auromarginatus*).

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

The main operational problem occurred early in the dive when the nozzle of the rotenone container was clogged with a thick paste of rotenone. The pilot facilitated dilution of the mixture by pumping the container with the manipulator arm. Several dead specimens were unavailable for collection due to their location deep within a cave.

Recommendations for corrective action or improvement:

It would appear mixing a thinner rotenone mixture would likely have alleviated clogging the nozzle. It is conceivable that combined submersible-CCR diving could have increased the efficiency of fish collection.

In your opinion, did the mission essentially achieve its purpose? Compare actual work accomplished with the work that was expected to be accomplished:

The number and diversity of fish collected vastly exceeded our expectations.

List specimens or samples collected on the mission:

QLR continued

Sample identification (or description)	Sample code	Total length (cm)	Sample box	Time	Depth (m)	Lat. (°N)	Long. (°W)	Comments (Substrate, size, etc.)
Chromis leucura	F1a	7.5	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Chromis leucura	F1b	7	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Trimma milti?	F2a	2	Suction basket	9:26-10:10	99	20°46.717	156°40.802	Rock wall overhang
Trimma milti?	F2b	2.5	Suction basket	9:26-10:10	99	20°46.717	156°40.802	Rock wall overhang
Trimma milti?	F2c	2.5	Suction basket	9:26-10:10	99	20°46.717	156°40.802	Rock wall overhang
Trimma milti?	F2d	2.2	Suction basket	9:26-10:10	99	20°46.717	156°40.802	Rock wall overhang
Trimma taylori?	F3	2.1	Suction basket	9:26-10:10	99	20°46.717	156°40.802	Rock wall overhang
Ostorhinchus maculiferus	F4	11	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Pseudochelinus evanidus	F5	8.4	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Podge (*Pseudogramma polyacanthum?*)	F6	6	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Synodus sp. (*Synodus doaki*?)	F7	7.1	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Labroides phthirophagus	F8	7.6	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Gymnothorax melatremus?	F9	17	Suction basket	~10:49	90	20°46.728	156°40.804	*Leptoseries* bed
Aulostomus chinensis	F10	35	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Pseudocheilinus evanidus	F11	5	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Pseudocheilinus evanidus	F12	4.7	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Plectranthias winniensis	F13	4.2	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Agopon deetsie?	F14	4.7	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron sp.	F15	13.2	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F16	10.6	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F17	10.8	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F18	9.6	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F19	29	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron ensiferum	F20	21.5	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Ostorhinchus maculiferus	F21	16	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Ostorhinchus maculiferus	F22	14.5	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Ostorhinchus maculiferus	F23	12.5	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Ostorhinchus maculiferus	F24	11.4	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Plectranthias	F25	3.7	Suction	13:05-	100	20°46.889	156°40.893	Rock wall small

winniensis			basket	15:43				cave
Pristiapogon kallopterus?	F26	15.3	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Pristiapogon kallopterus?	F27	14.2	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Pristiapogon kallopterus?	F28	14.5	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Pristiapogon kallopterus?	F29	13.7	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Pristiapogon kallopterus?	F30	13.7	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F31	9.5	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron xantherythrum	F32	14.2	Suction basket	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F33	14.5	1	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Brotula multibarba	F34	22	1	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Chaetodon miliaris	F35	15.2	2	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron ensiferum	F36	21.5	2	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron ensiferum	F37	21	2	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Conger oligoporus?	F38	56	2	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron ensiferum	F39	21	3	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron xantherythrum	F40	14.5	3	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Chromis verater	F41	17	3	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Sargocentron ensiferum	F42	15	3	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F43	26.5	4	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F44	17	4	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F45	20	5	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Conger oligoporus?	F46	37.5	5	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Mypristis chryseres	F47	17	6	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Conger oligoporus?	F48	40	6	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Gymnothorax eurostus	F49	43.5	6	13:05-15:43	100	20°46.889	156°40.893	Rock wall small cave
Trimma milti?	F50		Suction basket	13:05-15:43	99	20°46.717	156°40.802	Rock wall overhang

DATA RELEASE

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I hereby release the data archived by HURL for public consumption following mission (Project title):

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Held on _____ (date) in the following way:

a. CTD data by _____ (date)

b. Video and images by _____ (date)

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d. I will give my written consent to individuals wishing to use these data prior to the above dates depending on the nature of the request(s).

_____

Principal Investigator